

(12) 特許協力条約に基づいて公開された国際出願

(19) 世界知的所有権機関  
国際事務局(43) 国際公開日  
2005年1月6日 (06.01.2005)

PCT

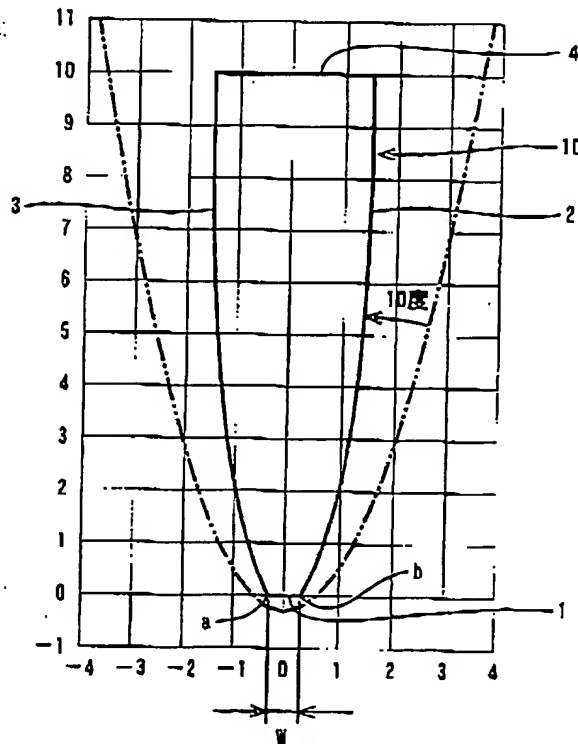
(10) 国際公開番号  
WO 2005/001528 A1

- (51) 国際特許分類: G02B 6/00, H04N 1/04, 1/028, F21V 8/00
- (21) 国際出願番号: PCT/JP2004/008621
- (22) 国際出願日: 2004年6月18日 (18.06.2004)
- (25) 国際出願の言語: 日本語
- (26) 国際公開の言語: 日本語
- (30) 優先権データ: 特願2003-181626 2003年6月25日 (25.06.2003) JP
- (71) 出願人 (米国を除く全ての指定国について): 日本板硝子株式会社 (NIPPON SHEET GLASS CO., LTD.) [JP/JP]; 〒5418559 大阪府大阪市中央区北浜四丁目7番28号 Osaka (JP).
- (72) 発明者: および
- (75) 発明者/出願人 (米国についてのみ): 池田 誠 (IKEDA, Makoto) [JP/JP]; 〒5418559 大阪府大阪市中央区北浜四丁目7番28号 日本板硝子株式会社内 Osaka (JP). 根本 浩之 (NEMOTO, Hiroyuki) [JP/JP]; 〒5418559 大阪府大阪市中央区北浜四丁目7番28号 日本板硝子株式会社内 Osaka (JP).
- (74) 代理人: 小山 有 (KOYAMA, Yuu); 〒1020083 東京都千代田区麹町5丁目7番 秀和紀尾井町 T B R ビル 9 2 2 号 Tokyo (JP).
- (81) 指定国 (表示のない限り、全ての種類の国内保護が可能): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KB, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA.

/続葉有/

(54) Title: LIGHT GUIDE AND IMAGE READER

(54) 発明の名称: 導光体および画像読取装置



A...10°

(57) Abstract [PROBLEMS] A document surface is illuminated efficiently by utilizing the characteristics of a compound paraboloid condenser (CPC) reversely to convert scattering light from some limited area over the entire angle into radiation light limited to a specified exit angle thereby minimizing spread of light. [MEANS FOR SOLVING PROBLEMS] In a light guide (10) arranged such that a light entering from the end face exits from an exit face (4) provided along the longitudinal direction while reflecting off the inner surface, a cross-sectional shape orthogonal to the longitudinal direction has two parabolas (2, 3) facing each other, a segment (bottom face) (1) connecting the focal points (a, b) of two parabolas (2, 3), and a segment corresponding to the exit face (4). A scattering pattern of white ink is formed on the segment (bottom face) (1) connecting the focal points (a, b).

(57) 要約: 【課題】 複合放物面集光器 (CPC) の特性を逆に利用し、ある限られたエリアからの全角に及ぶ散乱光を、所定の出射角に限定された放射光に変換し、光の広がりを最低限に抑えることで、原稿面を効率良く照らす。【解決手段】 端面から入射した光を内面で反射させながら長さ方向に沿って設けた出射面4から出射せしめるようにした導光体10において、長さ方向に直交する方向の断面形状は、対向する2つの放物線2, 3と、2つの放物線2, 3の焦点a, bを結ぶ線分(底面)1と、出射面4に相当する線分とを有する。焦点a, bを結ぶ線分(底面)1に、白色インクからなる散乱パターンを形成する。

WO 2005/001528 A1

## WO 2005/001528 A1



NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW.

BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,  
TD, TG).

(84) 指定国(表示のない限り、全ての種類の広域保護が可  
能): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD,  
SL, SZ, TZ, UG, ZM, ZW), ユーラシア (AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM), ヨーロッパ (AT, BE, BG,  
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF,

添付公開書類:

— 国際調査報告書

2文字コード及び他の略語については、定期発行される  
各PCTガゼットの巻頭に掲載されている「コードと略語  
のガイダンスノート」を参照。

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/008621

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl.<sup>7</sup> G02B6/00, H04N1/04, H04N1/028, F21V8/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl.<sup>7</sup> F21V8/00, G02B5/00-5/136, G02B6/00-6/43, G02B25/00-25/02,  
G02F1/1335-1/13357, G06T1/00, G09F9/00, G09F13/00-13/02,  
H04N1/00-1/028

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2004  
Kokai Jitsuyo Shinan Koho 1971-2004 Jitsuyo Shinan Toroku Koho 1996-2004Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
JICST (JOIS)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001-268320 A (Nippon Sheet Glass Co., Ltd.), 28 September, 2001 (28.09.01), Par. Nos. [0021], [0022], [0034] to [0039]; Figs. 2, 6 & US 2001-35986 A1 & CN 1314614 A	1-4
A	WO 1997/20169 A1 (PHYSICAL OPTICS CORP.), 05 June, 1997 (05.06.97), Column 24, lines 24 to column 25, line 7; column 33, lines 7 to 22; Figs. 13, 20 & US 5629996 A1 & US 6028535 A1 & CA 2237069 A & EP 864065 A	1-4

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search  
03 August, 2004 (03.08.04)Date of mailing of the international search report  
17 August, 2004 (17.08.04)Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/008621

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001-135116 A (Visteon Global Technologies, Inc.), 18 May, 2001 (18.05.01), Par. Nos. [0017] to [0019]; Fig. 1 & EP 1085256 A	1-4
A	JP 5-313005 A (Pioneer Electronic Corp.), 26 November, 1993 (26.11.93), Par. Nos. [0013] to [0018]; Fig. 1 (Family: none)	1-4